Phase I Report - October thru November 1972

EVALUATION OF ERTS DATA FOR CERTAIN HYDROLOGICAL USES

Principal Investigator Donald R. Wiesnet

Coinvestigator David F. McGinnis

NOAA/NESS/ESG

Suite 300, 3737 Branch Avenue

Washington, D.C. 20031

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Objective:

The overall objective of this investigation is to evaluate ERTS data for hydrologic information in two areas in which extensive ground truth is available.

a. Sierra Nevada studies.--Here the objective is to evaluate ERTS data from a mountainous region with extensive ground truth and where a prolonged melting snowpack is the primary source of surface runoff to a highly managed river system. To determine--by comparing satellite and ground truth data--the feasibility of indirect quantitative assessments of water storage in reservoirs and possibly in the snowpack as snow. Snow mapping in mountainous terrain is an extremely challenging task.

b. Lake Ontario (IFHGL) studies: Here the objective is to assess in a quantitative way, the ERTS data from a temperate region lake and from its drainage basin, in terms of hydrologic information content, relating ground truth to spectral band, ground resolution, etc. Coincident use of ITOS-D imagery and data will permit evaluation of the effect of the 18-day revisit cycle on hydrologic phenomenologic monitoring.

Work Summary

a. Sierras.--A borrowed Zoom Transfer Scope was obtained late in the period to aid in projecting the snow line as depicted in ERTS imagery onto the American and Feather River basin maps. However, a request to reveive imagery of the California-Nevada area beginning Oct 1, had not produced any scenes for this test site.

b. Lake Ontario Basin.--Thermal IR and multispectral imagery of the Scipio-Fleming area, south of Lake Ontario was flown with a NOS Dehaviland-Otter aircraft on October 11, 1972. Additional information in the form of airborne gamma-ray data and soil moisture samples were also taken. A similar data survey occurred on October 13, 1972 over the Lake Oneida district coincident with ERTS 1. Reduction of these data was begun near the end of the period.

These surveys are in addition to the airborne syrveys reported in the previous Phase I report.

Work Plans

During the next two-month period, snow limits as pictured in ERTS imagery will be transferred onto basin maps for the Feather and American Rivers. An attempt will be made to evaluate the effectiveness of the 18-day cycle to measure changes in snowpack extent. The data received from the 11 Oct and 13 Oct flights will be reduced for future analysis.

Problems: Delivery of the Zoom Transfer Scope has been delayed. However, we have access to a borrowed device on an intermittent basis. Lack of this instrument is delaying this project.

Also, to date we have not received any ERTS imagery from Goddard on the Sierra area, despite several calls to the technical monitor and other NASA authorities.